

Planetary Forecaster

How Does Earth's Tilt Affect Surface Temperatures at different Latitudes?

LS 3.3

Look at how Earth's surface temperatures vary throughout the year.

Read the first paragraph on page 77.

Predict

Write a prediction by completing the following sentences.

- If tilt is a factor affecting Earth's temperature, then temperatures near the Equator will vary (*a lot, a little, or some*).
- If tilt is a factor affecting Earth's temperature, then temperatures at mid-latitudes will vary (*a lot, a little, or some*).
- If tilt is a factor affecting Earth's temperature, then temperatures at the poles will vary (*a lot, a little, or some*).

Procedure: Read and follow the procedure on pages 77 & 78 and collect data on monthly temperatures at certain locations.

Recording Your Data: Record Data on the **Monthly Temperature** sheet located on the back of this packet.

1. Collect average monthly temperature data for each of these locations.
2. Record the temperature to the nearest degree.
3. Put a circle around the yearly high temperature for each location.
4. Put a square around the yearly low temperature for each location.

Analyze Your Data: Calculate the temperature range for each location using the Temperature Ranges data sheet.

Reflect: Answer these questions to help you summarize what you have learned from your investigation. Remember, you were attempting to determine how the tilt of a planet affects the temperature at different latitudes.

1. Which latitudes have the smallest change in temperature throughout the year?

Why do you think that happens?

2. Which latitudes have the largest change in temperature throughout the year?

Why do you think that happens?

3. In which months are the temperatures in the Northern Hemisphere the highest? The lowest?

Highest:

Lowest:

4. In which months are the temperatures in the Southern Hemisphere the highest? The lowest?

Highest:

Lowest:

What's the Point? Read page 81.

How did the change in temperatures affect the tropics, poles and Northern Hemisphere?

Monthly Temperature Data

3.3.1

Name: _____ Date: _____

Location	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Peary Land, Greenland (81°N, 36°W) polar												
Helsinki, Finland (60°N, 24°E) mid-latitude north												
Atlanta, GA, USA (33°N, 84°W) mid-latitude north												
Quito, Ecuador (0°, 78°W) tropic												
Darwin, Australia (14°S, 131°E) tropic												
Buenos Aires, Argentina (34°S, 58°W) mid-latitude south												
Sydney, Australia (34°S, 150°E) mid-latitude south												
Mount Seeling, Antarctica (82°S, 104°E) polar												

Temperature Range Data

3.3.2

Name: _____ Date: _____

Location	High temperature	Month	Low temperature	Month	Yearly temperature change (high-low)
Peary Land, Greenland (81°N, 36°W) <i>polar</i>					
Helsinki, Finland (60°N, 24°E) <i>mid-latitude north</i>					
Atlanta, GA, USA (33°N, 84°W) <i>mid-latitude north</i>					
Quito, Ecuador (0°, 78°W) <i>tropic</i>					
Darwin, Australia (14°S, 131°E) <i>tropic</i>					
Buenos Aires, Argentina (34°S, 58°W) <i>mid-latitude south</i>					
Sydney, Australia (34°S, 150°E) <i>mid-latitude south</i>					
Mount Seelig, Antarctica (82°S, 104°E) <i>polar</i>					